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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,176	08/27/2003	Hidekazu Arase	5077-000183	4782
27572 7590 05/24/2007 HARNES, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			EXAMINER SHOSHO, CALLIE E	
			ART UNIT 1714	PAPER NUMBER
			MAIL DATE 05/24/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/649,176

Applicant(s)

ARASE ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In the office action mailed 11/22/06, the examiner indicated claims 5-7 as objected to as being dependent upon a rejected base claim, but allowable if rewritten in independent form.

However, the examiner has reconsidered the above position with respect to present claims 5-7 (see paragraph 9 below). Given that applicants' after-final amendment filed 1/31/07 was based on the examiner's previous position that the prior art, namely Matsumura et al. '928 (U.S. 6,306,928), did not meet the limitations of present claims 5-7 and in order to give applicants an opportunity to respond to this new ground of rejection, the after-final amendment filed 1/31/07 has not been entered and the finality of the office action mailed 11/22/06 has been withdrawn. Thus, the following action is non-final.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-7, 9-10, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumura et al. '928 (U.S. 6,306,928).

Matsumura et al. '928 disclose ink jet ink comprising colorant, humectant, and water-soluble organosilicone obtained from (i) aminated organic group-bearing hydrolysable silane of the formula $YR^1_m SiR^2_{3-m}$ wherein m is 0 or 1, R^1 is unsubstituted or substituted monovalent hydrocarbon group, R^2 is alkoxy group, and Y is aminated organic group, i.e. corresponding to

presently claimed alkoxysilane comprising amino group, (ii) hydrolyzable silane of the formula $R^3_nSiR^4_{4-n}$ wherein each of R^3 is alkyl or halogenated alkyl group which clearly includes fluoroalkyl group, R^4 is alkoxy group, and n is 0, 1, or 2, i.e. corresponding to presently claimed alkoxysilane comprising hydrophobic group that is fluoroalkyl group and alkyl group, and (iii) monoepoxy compound of, for instance, the formula $CH_2-CHCH_2OCH_2CH_2CH_2Si(OCH_3)_3$, corresponding to presently claimed alkoxysilane with no amino group. There is also disclosed ink jet printer comprising the ink wherein the ink is discharged from the printer onto substrate. Although there is no explicit disclosure of ink cartridge comprising the above ink, it is clear that the ink jet printer inherently possesses cartridge to store ink (col.1, lines 5-25, col.2, line 41-col.3, line 25, col.3, lines 33-38 and 42-65, col.7, lines 5-6 and 25, col.7, line 65-col.8, line 5, col.8, lines 9-10, col.10, lines 34-40, and col.14, lines 35-39). Given the broad amount of hydrolyzable silane (ii) disclosed by Matsumura et al. '928, i.e. 5-200 parts per 100 parts aminated organic group-bearing silane (i) and amount of monoepoxy compound (iii) corresponding to 0.01-20 moles epoxy groups per mole amino group, it is clear that the amount of hydrolysable silane (ii), which corresponds to presently claimed alkoxysilane comprising hydrophobic group, would overlap that presently claimed.

Although there is no disclosure that the water-soluble organosilicone undergoes condensation polymerization in the absence of water, given that Matsumura et al. '928 disclose water-soluble substance as presently claimed, it is clear that the water-soluble organosilicone would inherently undergo condensation polymerization in the absence of water and thereby inherently form a network so as to enclose the colorant as presently claimed. Additionally, given that the water-soluble substance of Matsumura et al. '928 has hydrophobic group as presently

claimed, it is clear that the network would also inherently have hydrophobicity as presently claimed.

In light of the above, it is clear that Matsumura et al. '928 anticipate the present claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 8, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. '928 (U.S. 6,306,928) in view of Blease et al. (U.S. 6,585,362).

The disclosure with respect to Matsumura et al. '928 in paragraph 3 above is incorporated here by reference.

The difference between Matsumura et al. '928 and the present claimed invention is the requirement in the claims of penetrant.

Blease et al., which is drawn to ink jet ink, disclose the use of penetrant in order to help the ink penetrate into the substrate (col.6, lines 37-42).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use penetrant in the ink jet ink of Matsumura et al. '928 in order to produce ink with good penetration into substrate and thus, quicker drying and less smudging, and thereby arrive at the claimed invention.

7. Claims 1, 3-7, 9-10, and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. '928 (U.S. 6,306,928).

Matsumura et al. '928 disclose ink jet ink comprising colorant, humectant, and water-soluble organosilicone obtained from (i) aminated organic group-bearing hydrolysable silane of the formula $YR^1_m SiR^2_{3-m}$ wherein m is 0 or 1, R^1 is unsubstituted or substituted monovalent hydrocarbon group, R^2 is alkoxy group, and Y is aminated organic group, i.e. corresponding to

presently claimed alkoxysilane comprising amino group, (ii) hydrolyzable silane of the formula $R^3_nSiR^4_{4-n}$ wherein each of R^3 is alkyl or halogenated alkyl group which clearly includes fluoroalkyl group, R^4 is alkoxy group, and n is 0, 1, or 2, i.e. corresponding to presently claimed alkoxysilane comprising hydrophobic group that is fluoroalkyl group and alkyl group, and (iii) monoepoxy compound of, for instance, the formula $CH_2-CHCH_2OCH_2CH_2CH_2Si(OCH_3)_3$, corresponding to presently claimed alkoxysilane with no amino group. There is also disclosed ink jet printer comprising the ink wherein the ink is discharged from the printer onto substrate. Although there is no explicit disclosure of ink cartridge comprising the above ink, it is clear that the ink jet printer inherently possesses cartridge to store ink (col.1, lines 5-25, col.2, line 41-col.3, line 25, col.3, lines 33-38 and 42-65, col.7, lines 5-6 and 25, col.7, line 65-col.8, line 5, col.8, lines 9-10, col.10, lines 34-40, and col.14, lines 35-39). Given the broad amount of hydrolyzable silane (ii) disclosed by Matsumura et al. '928, i.e. 5-200 parts per 100 parts aminated organic group-bearing silane (i) and amount of monoepoxy compound (iii) corresponding to 0.01-20 moles epoxy groups per mole amino group, it is clear that the amount of hydrolysable silane (ii), which corresponds to presently claimed alkoxysilane comprising hydrophobic group, would overlap that presently claimed.

Although there is no disclosure that the water-soluble organosilicone undergoes condensation polymerization in the absence of water, given that Matsumura et al. '928 disclose water-soluble substance as presently claimed, it is clear that the water-soluble organosilicone would intrinsically undergo condensation polymerization in the absence of water and thereby intrinsically form a network so as to enclose the colorant as presently claimed. Additionally, given that the water-soluble substance of Matsumura et al. '928 has hydrophobic group as

presently claimed, it is clear that the network would also inherently have hydrophobicity as presently claimed.

While Matsumura et al. '928 fails to exemplify the presently claimed ink, nevertheless, in light of the overlap between the claimed ink and the ink disclosed by Matsumura et al. '928, absent a showing of criticality for the presently claimed ink, it is urged that it would have been within the bounds of routine experimentation, as well as the skill level of one of ordinary skill in the art, to use ink which is both disclosed by Matsumura et al. '928 and encompassed within the scope of the present claims and thereby arrive at the claimed invention.

8. Claims 8, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. '928 as applied to claims 1, 3-7, 9-10, and 12 above, and further in view of Blease et al. (U.S. 6,585,362).

The difference between Matsumura et al. '928 and the present claimed invention is the requirement in the claims of penetrant.

Blease et al., which is drawn to ink jet ink, disclose the use of penetrant in order to help the ink penetrate into the substrate (col.6, lines 37-42).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use penetrant in the ink jet ink of Matsumura et al. '928 in order to produce ink with good penetration into substrate and thus, quicker drying and less smudging, and thereby arrive at the claimed invention.

9. **NOTE:** Previously, the examiner indicated present claims 5-7 as objected to as being dependent upon a rejected base claim but allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims given the examiner's position that there was no disclosure in Matsumura et al. '928 of (i) second compound that is alkoxysilane comprising fluoroalkyl group as required in present claim 5 or (ii) second compound that is alkoxysilane comprising both alkyl group and fluoroalkyl group as required in present claims 6-7.

However, upon reconsideration of Matsumura et al. '928, it is the examiner's position that Matsumura et al. '928 do meet the limitations of present claims 5-7 as set forth below.

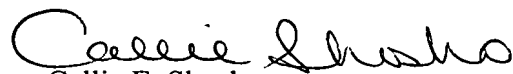
Specifically, attention is drawn to col.7, lines 65-col.8, line 7 of Matsumura et al. '928 that disclose the use of hydrolysable silane (B) of the formula $R^3_nSiR^4_{4-n}$ wherein R^3 is unsubstituted or substituted monovalent hydrocarbon group having 1 to 8 carbon atoms, R^4 is alkoxy group, and n is 0, 1, or 2, col.8, lines 9-11 that discloses that R^3 is exemplified by the same groups as R^1 , col.4, lines 60-67 that disclose R^1 includes alkyl group and halogenated alkyl group, and to claim 3 that discloses that each of R^3 is alkyl or halogenated alkyl group. It is noted that halogenated alkyl group clearly encompasses fluoroalkyl group as presently claimed. Thus, it is clear that hydrolysable silane (B) of Matsumura et al. does in fact correspond to presently claimed second compound comprising alkoxysilane comprising hydrophobic group comprising fluoroalkyl group as required in present claim 5 or fluoroalkyl group and alkyl group as required in present claims 6-7.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
5/21/07